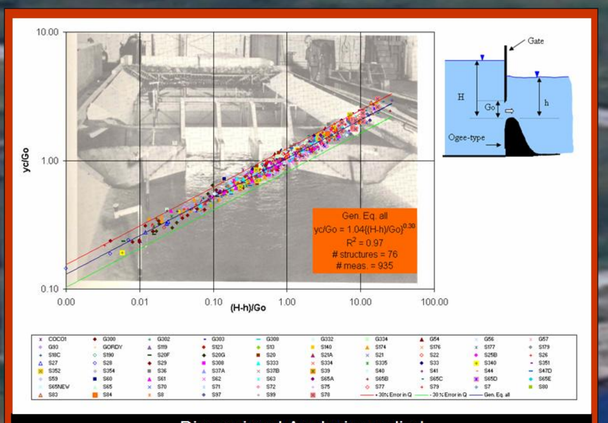
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

NEXFLOW

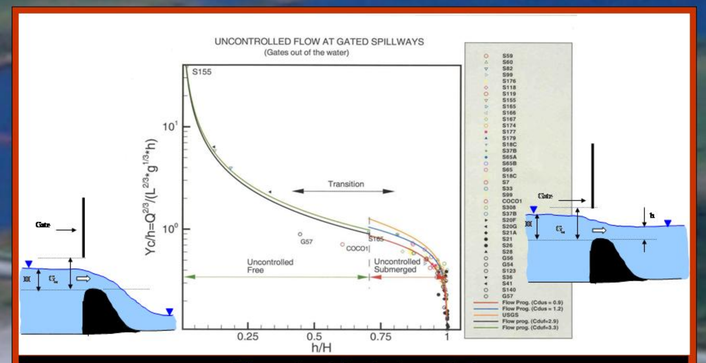
Next Generation Flow Program

INTRODUCTION

To estimate flows, the District uses an in-house computer program called FLOW. FLOW consists of a compilation of calibrated discharge rating equations at District hydraulic structures, including spillways, pumps, weirs, and culverts. NEXFLOW is a highly improved, more physically-based, and more robust version of the FLOW program.



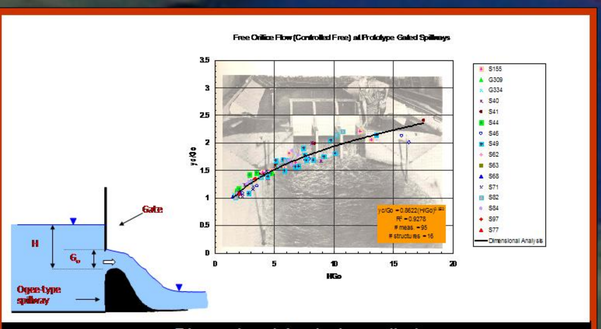
Dimensional Analysis applied
to the submerged orifice flow conditions at gated spillways.



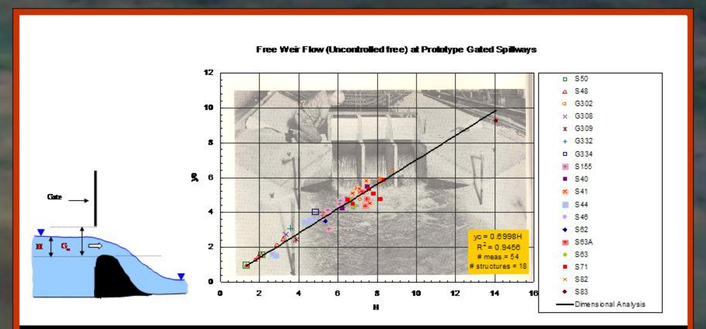
Dimensional Analysis applied
to the submerged weir flow conditions at gated spillways.

OBJECTIVE

The objective of NEXFLOW is to develop generalized calibrated flow rating equations at District hydraulic structures. In order to achieve this, extensive use is made of a flow data analysis procedure known as Dimensional Analysis.



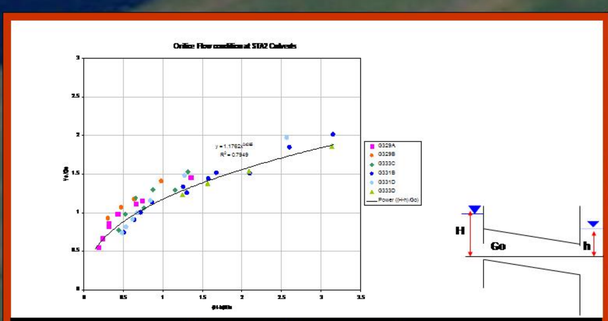
Dimensional Analysis applied
to the free orifice flow conditions at gated spillways.



Dimensional Analysis applied
to the free weir flow conditions at gated spillways.

BENEFITS TO THE DISTRICT

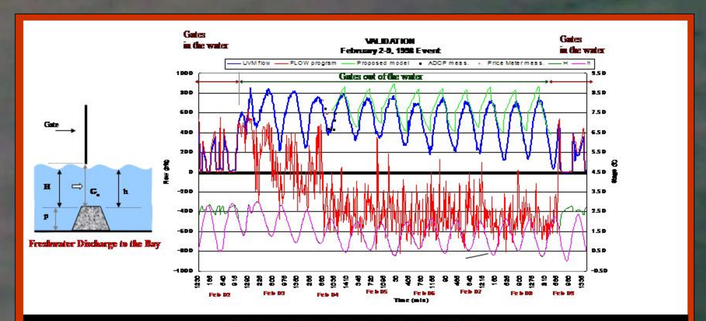
The benefits of NEXFLOW include accurate flow estimates and a significantly lower cost of flow monitoring at District structures through reduced streamgauging needs and simpler implementation of flow computation routines.



Dimensional Analysis applied
to orifice flow conditions at culverts.

CONCLUSION

NEXFLOW is an ambitious project intended to address the shortcomings of the existing FLOW program. Preliminary results at gated spillways and culverts indicate that Dimensional Analysis is a powerful flow data analysis tool which results in accurate calibrated discharge rating equations at District hydraulic structures.



Dimensional Analysis applied
to tidal flow conditions at gated spillways.

EMA
Real Data. Good Science. Good Decisions.
Environmental Monitoring & Assessment Department

Prepared for Hydrology & Hydraulics
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March 1, 2004